

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**2. Claims 1-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Sonnenschein et al. (US 2002/0033227).**

#### *Per independent claims 1, 7, and 9:*

Sonnenschein et al. teach a polymerizable adhesive composition ([0013]) that is a 2-part formulation ([0055]). The first part contains the complexes of the composition, and the other part contains the initiator ([0055]). The complex of the composition contains a trialkylborane-organonitrogen complex ([0011]), water carrier ([0068]), and polyethylene glycol diacrylate surfactant ([0062]). The second part contains an initiator of methylmethacrylate, poly(methylmethacrylate), and acrylic acid ([0085]).

Per claim 2, the composition contains trialkylborane-organonitrogen complex ([0011]) and poly(methylmethacrylate) ([0085]).

Per claim 3, see claim 2.

Per claim 4, the composition contains polyethylene glycol diacrylate (see claim 1).

Per claim 5, the second part of the formulation contains methylmethacrylate and acrylic acid (see claim 1).

Per claim 6, see claim 5.

Per claim 8, pigments can be added to the composition ([0068]).

Per claims 10-11, see claim 9.

Per claim 12, the composition is a cured adhesive ([0013]).

Per independent claim 13:

Claim 13 contains all the limitations of claim 1 and further includes contacting the formulation and applying the curing adhesive to a low surface energy substrate.

Sonnenschein et al. teach contacting the components of the adhesive composition and applying the adhesive to substrates ([0013]). The substrate is low surface energy substrate ([0014]).

Per claim 14, the curing and contacting are done concurrently ([0013]).

Per claim 15, the substrate is polypropylene ([0067]).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sonnenschein et al. (US 2002/0033227) as evidenced by Sonnenschein et al. (US 2004/0259990).**

Sonnenschein et al. ('227) teach all the limitations of claim 13 and that a low surface energy polypropylene substrate is used. Sonnenschein et al. ('227) does not specify the tacticity of the polypropylene substrate.

Isotactic polypropylene is a low surface energy substrate. This is evidenced by Sonnenschein et al. ('990) wherein the reference teach that isotactic polypropylene is a low surface energy substrate (see abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to use an isotactic polypropylene as the low surface energy substrate taught by Sonnenschein et al. ('227). One would have been motivated to choose isotactic as the tacticity of polypropylene because the reference disclose that a low surface energy substrate needs to be used.

***Response to Arguments***

6. Applicant's arguments filed 12/22/2009 have been fully considered but they are not persuasive.

a. Applicants argue (page 3) that Sconnenschein et al. US '227 ([0055]) disclose the mechanism is either employing an effective amount of the decomplexing agent or heating without a decomplexing agent. This does not appear to be the case in the reference. The reference indicates ([0055]) that the polymerizable composition can be either one or two-part compositions. In one embodiment, the compositions are two-part compositions in which one-part contains the complexes of the invention and the other part contains the decomplexing agent (initiator). It further discloses that in **this** embodiment, heat may be applied to the polymerizable composition to speed up initiation or polymerization. Clearly, the disclosure points that heating can be supplemental and the initiator can still be part of the composition.

b. Applicants argue that US '227 does not literally teach instant combination. Specifically, the invention does not specifically teach a polymerizable composition embodiment that employs the water or polyethylene glycol diacrylate, either separately or together. This is not found to be persuasive. The reference teaches that a cross-linking agent can be used, in which a particular example is polyethylene glycol diacrylate ([0062]). Furthermore, the reference disclosed that the complexes of the instant invention may be dissolved in a water solvent ([0070]). The reference does not need to disclose a specific

Art Unit: 1792

embodiment/example that incorporates everything required by the instant claim in order to be anticipatory. Furthermore, it is clear that the reference disclose the use of polyethylene glycol diacrylate and water solvent.

c. Applicants argue that US '227 does not inherently teach instant combination. Applicants argue that US '227 teaches a variety of additives, carrier, or solvent that can be combined with one or two of the parts of the reference. However, since the claim language used in instant claim 1 is "comprising", the claim does not rule out the use of additives, carriers, or other compositions.

d. Applicants argue that US '227 is missing instant claim elements. Specifically, the reference does not teach an additive that is neutral or basic surfactant. This argument is not persuasive because it is more specific than the claim. Instant claim 1 only requires a surfactant, it does not require a neutral or basic surfactant. Applicants also argue that the reference does not teach a "trialkylborane-displacing initiator". However, the reference ([0050]) disclose that the decomplexing initiator is acrylic acid. Applicants (claim 6) disclose that the trialkylborane initiator includes acrylic acid. Since the reference disclose the same initiator as instantly claimed, it is also a trialkylborane-displacing initiator.

e. Applicants argue (page 8), that it is only when the instant neutral or basic surfactant is used that the instant protected alkylborane complex becomes stable in air. As mentioned above, this argument is more specific than the instant claim limitations since the surfactant is not required to be neutral or basic. Additionally,

the reference discloses the same surfactant required by the instant invention (claim 4). Since the reference discloses all the parts of the composition as instantly claimed, the alkylborane complex is also stable in air with the surfactant.

### ***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to XIAO ZHAO whose telephone number is (571)270-5343. The examiner can normally be reached on Monday to Friday 8:30 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Kornakov can be reached on (571)272-1303. The fax phone

Art Unit: 1792

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Xiao S Zhao/

Examiner, Art Unit 1792

/Michael Kornakov/

Supervisory Patent Examiner, Art Unit 1792